The Rocket Blog

A blog about anything related to rockets and space technology from news to how to make your own propellant.

MONDAY, JULY 9, 2012

How to make APCP

APCP is the propellant of the Space Shuttle's solid booster and it stands for Ammonium Perchlorate Composite Propellant.

It is very a good propellant with high performance : high specific impulse (300s average against 160s for rocket candy), high thrust and is not very expensive.

The chemicals needed are, of course, ammonium perchlorate (AP) but it is not available in many countries. You can make it at home through electrolysis of a solution of sodium chloride but requires a special electrode to have a good yield. I'll describe the process in another post on how to make your own AP at home.

The second chemicals is aluminium powder, a very fine powder (under 250 mesh) more exactly. You can buy it on the Internet, find it in a pottery shop as a pigment or make it by putting some aluminium sheets in a ball mill for several days.

Mix well (it's very important) the two components and add a resin like HTPB. It is in a liquid form you will have to cure it. The curing agent for it is usually a polyisocyanate compound like Isonate-143-L.

The resin and the curative are the most expensive products but a little bottle can last several use.

This is the most used formula for this propellant but you can still use another binder like dextrin or Parlon.

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